

February 22, 2013

To: Executive Board

Subject: **Quarterly Fleet Maintenance Audit Report**

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### **Recommendation**

Receive and file a report on the January 2013 quarterly fleet maintenance audits performed on the Foothill Transit fleet.

### **Background**

Every quarter, third party auditor Vehicle Technical Consultants (VTC) performs a thorough inspection of approximately 30 coaches at each operations and maintenance facility to determine First Transit's conformance to both regulatory and Foothill Transit's standards for fleet maintenance. Each audit includes a physical inspection of a group of randomly chosen buses and a review of the each location's maintenance records.

The fleet maintenance audit enables Foothill Transit to quantify the quality of First Transit's maintenance efforts. All vehicles must meet or exceed standards for safety, mechanical condition, preventive maintenance inspections, appearance, and maintenance record keeping. These inspections are in addition to legally required California Highway Patrol (CHP) annual fleet and terminal audits. A more detailed description of Foothill Transit's standards for fleet maintenance can be found in **Attachment A**.

After each inspection First Transit is supplied with a detailed inspection report and is responsible for making any repairs identified within a reasonable period of time.

### **Analysis**

During each inspection, "defects" are found on each bus and are recorded according to their "severity" rating. Each coach may have multiple defects. The definitions below define each severity code rating.

- Defect Rating 1: This category identifies the most serious Out of Service (OOS) items as set forth by the North American Out of Service Standards for buses. Examples of this type of defect include problems with brakes or an inoperable door sensitive edge (mechanism that controls how fast the door reopens when a passenger attempts to enter/exit while the door is closing). These items must be repaired immediately by First Transit before the bus can reenter service. The auditor verifies these repairs have been made.
- Defect Rating 2: This category identifies items that do not comply with Foothill Transit's contractual maintenance standards but would not require a bus to be

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removed from service and do not pose a safety hazard. Examples include a worn fan belt or a dirty air conditioning filter.

- Defect Rating 3: This category identifies critical items that should be addressed, but where repairs are not legally required to resume service. Examples include a loose seat or a loose window handle.
- Defect Rating 4: This category identifies mechanical defects that require attention soon, but are not an immediate concern. Examples include an inoperable windshield washer pump or a loose bumper bolt.
- Defect Rating 5: This category identifies items that do not meet Foothill Transit's standards for vehicle appearance, and would therefore cause a Foothill Transit Service Quality Inspector to remove a bus from service. Examples include graffiti, spotted windows, scratches, or dirty upholstery.
- Defect Rating 6: This category identifies minor technical defects such as loose screws or a worn seal.

Additionally, the auditor reviews each location's records to determine the timeliness for all fleet preventative maintenance inspections (PMIs). The maximum allowable window is 6,500-mile intervals, as specified by Foothill Transit. As a reference, bus manufacturers and the Federal Transit Administration (FTA) allow a 6,600-mile maximum.

### Arcadia Fleet Maintenance Audit Summary

On January 19 and 20, 2013 VTC performed an inspection of 30 buses at the Arcadia Operations and Maintenance Facility.

#### Summary of Noted Defects:

Defect Rating	Findings During Jan 2013 Audit	Findings During Oct 2012 Audit	Variance (decrease is better)	Description
1	28	34	-6	Severe safety concern/immediate attention
2	1	1	0	Foothill Transit OOS Standards
3	32	37	-5	Critical system (not out of service)
4	156	159	-3	Mechanical defect that needs attention soon
5	137	55	+82	Cosmetic body/interior defect, no immediate concern
6	74	113	-39	Minor technical defect

***Recurring defects:***

- *Fire extinguishers beyond inspection date*
- *Air leaks*
- *Rear seat engine hatch bolts loose/missing*

After each quarterly audit inspection, a “debriefing” is held with Foothill Transit, First Transit, and the VTC Auditor who performed the inspection. The debriefing was held on January 21, 2013. At this meeting, First Transit Arcadia was required to communicate a plan to resolve any maintenance-related items Foothill Transit deems to potentially be problematic fleet-wide, as opposed to an isolated occurrence. The following information outlines First Transit Arcadia’s plan to address the above noted recurring defects:

- *Fire extinguishers beyond inspection date:* The inspection of fire extinguishers is part of each operator’s pre-trip inspection of the bus. First Transit has committed to greater diligence in this area. Additionally, members of the Maintenance and Vehicle Technology Department now monitor this inspection during the morning rollout of the fleet to ensure it is being done properly.
- *Air leaks:* First Transit Arcadia has implemented a policy that mandates all maintenance work areas as “quiet zones,” with no radios or distracting sounds allowed, so air leaks can easily be detected.
- *Rear seat engine hatch bolts loose/missing:* The mounting holes on the rear engine hatch have been damaged over time. First Transit is now welding washers to keep bolts in place.

First Transit Arcadia performed all PMIs during the audited period on time; each PMI was performed at an average of 5,406 miles, earlier than contractually required.

## Pomona Fleet Maintenance Audit Summary

On January 26 and 27, 2013 VTC performed a similar inspection of 30 different buses at the Pomona Operations and Maintenance Facility.

### Summary of Noted Defects:

Defect Rating	Findings During Jan 2013 Audit	Findings During Oct 2012 Audit	Variance (decrease is better)	Description
1	24	46	-22	Severe safety concern/immediate attention
2	1	2	-1	Foothill Transit OOS Standards
3	27	31	-4	Critical system (not out of service)
4	122	197	-75	Mechanical defect that needs attention soon
5	168	155	+13	Cosmetic body/interior defect, no immediate concern
6	95	20	+75	Minor technical defect

### Recurring defects:

- *Emergency Windows Inoperable*
- *Air leaks*

The debriefing following this audit was held on 1/29/13. At this meeting, First Transit Pomona was required to communicate a plan to resolve any maintenance-related items Foothill Transit deems to potentially be problematic fleet-wide, as opposed to an isolated occurrence. The following information outlines First Transit's plan to address the above noted recurring defects:

- *Emergency Windows Inoperable:* First Transit repaired inoperable emergency windows immediately. The inspection of emergency windows is part of each operator's pre-trip inspection of the bus. First Transit began an emergency exit campaign including an inspection and lubrication of all window mechanisms. Additionally, members of the Maintenance and Vehicle Technology Department now monitor this inspection during morning rollout to ensure it is being done properly.
- *Air leaks:* First Transit Pomona has also implemented a policy that mandates all maintenance work areas as "quiet zones," with no radios or distracting sounds allowed, so air leaks can easily be detected.

First Transit Pomona performed all PMIs during the audited period on time; each PMI was performed at an average of 5,700 miles, earlier than contractually required.



**Budget Impact**

The cost to perform these fleet maintenance audit services is \$120 per bus and is budgeted as an operating expense in the FY 2013 Business Plan.

Sincerely,

Lauren Cochran Festner  
Director of Maintenance and Vehicle Technology

Doran J. Barnes  
Executive Director



## Attachment A

### Foothill Transit Standards for Fleet Maintenance

#### 1. Service Contract Provisions

Foothill Transit has included the following provisions in its contract agreement with each service contractor.

- a. All vehicles, bus equipment and other equipment necessary to provide services shall be maintained by the contractor in acceptable appearance and in good repair and condition, satisfactory to Foothill Transit.
- b. The contractor shall maintain a satisfactory California Highway Patrol (CHP) terminal inspection throughout the term of the agreement.
- c. At all times the contractor shall, at its sole expense, cause all components of each Revenue Vehicle, including body, engines, transmissions, tires, frame, furnishings, mechanical, electric, pneumatic, hydraulic or other operating systems, to be maintained in proper working condition free from damage and malfunction.
- d. The contractor shall be responsible for maintaining the appearance of all revenue vehicles. All vehicles must be kept clean, including, but not limited to the following actions:
  - Wash exterior at least three times a week, sweep or vacuum interiors daily, remove all dirt, debris, graffiti, and trash daily. Repair or replace promptly any worn, broken, cut, torn, or vandalized components that are visible to, and accessible by the public to eliminate hazards, minimize discomfort, and/or maintain appearance.
  - The monthly cleaning procedure must include, but need not be limited to, all areas of the vehicle including bumpers, wheels, aluminum wheels, windows, panels, and seats.
- e. The contractor shall conduct routine preventive maintenance inspections and servicing at intervals of 6,000 miles or that recommended vehicle manufacturer's specifications, whichever is lower. The contractor shall conduct a more extensive inspection and servicing at 12,000-mile intervals or as specified by the transit vehicle manufacturer, whichever is lower. The contractor shall conduct an annual or 48,000-mile preventive maintenance inspection containing all items required by the component

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manufacturers. The contractor shall conduct weekly brake/safety inspections.

- f. As part of its maintenance program, the contractor shall participate in Foothill Transit's fluid analysis program:
  - Oil--analyzed in advance of each preventive maintenance inspection.
  - Transmission fluid--analyzed every six months.
  - Fuel, coolant, differential fluid--analyzed at intervals deemed appropriate by Foothill Transit.
- g. Vehicles utilized in service under the agreement shall be safe for operations on public streets and freeways and meet all requirements of the California Vehicle Safety Code. All parts of vehicles and all equipment mounted on or in the vehicles shall conform to the California Vehicle Standards, California Administrative Code, Title 13, the Americans with Disabilities Act (ADA), and the CHP Motor Carrier Safety Regulations.
- h. Tires must meet the following standards:
  - Front Axle – tires shall have a tread depth of 12/32 inch, minimum. Recapped or re-grooved tires are not acceptable.
  - Rear Axle – tires should have a thread depth of 8/32 inch, minimum. The tire height between two tires on the same hub should not vary by more than 3/32 inch.
  - Tires with cuts, grooves, or evidence of curb damage (past the manufacturer's rub bars) are not acceptable.
- i. If any of the following items is found to be defective or not up to standards, the bus is to be taken out of service and reported to the service contractors' maintenance manager and to Foothill Transit as soon as possible.
  - Any item relating to the brake system that does not meet acceptable standards:
  - Brake adjustments, worn linings and air leak are automatic "out of service" items.
- j. Air systems must be clean and properly maintained. There are no acceptable exceptions.
- k. Steering box, lines, king pins, tie rods, radius rods, bellows, valves, bushings, shocks, etc. that are worn close to or past the limits dictated by

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good preventive/predictive maintenance practices must be replaced.

- l. Dirty engine compartments, any fluid leaks, worn hoses, lines, and belts, exhaust leaks, excessive smoke, etc. are not permitted.
- m. Air conditioning must be operational. No defects will be acceptable.
- n. Wheelchair lifts must be operational. No defects will be acceptable.
- o. Destination signs must be operational and readable to the public. No more than 5% of the pixel can be out, if the full sign is still readable.
- p. Interiors must be clean and graffiti free.
  - No torn, stained or dirty seats.
  - No dirty or damaged rear or side panels.
  - No loose handrails, loose screws, etc.
  - Any scratches of ¼ inch or longer may be considered to be graffiti.
  - Damaged or missing decals are not acceptable.
- q. Windows must be clean, spot and graffiti free; windows must be operational.
- r. Exteriors must be clean and free of all body damage, including:
  - Tree scratches.
  - Faded or torn bumpers and fenders flares.
  - Excessive soap build-up and water spots.
  - Damaged or missing decals.
- s. Tires and Wheel Thread depth must not be less than 3/32 inch. Tire height between inner and outer tires on the same side must not differ by more than 3/32 inch. Leaking seals, loose or missing studs and lug nuts, and dirty wheels are not acceptable.